

REMARKS

Claims 1 and 2 have been amended to include recitations based on claim 4, and claim 4 has been canceled accordingly. Claim 5 has been amended to change its dependency in view of the cancellation of claim 4. Non-elected method claims 8 and 13 have been amended to facilitate rejoinder under MPEP 821.04(b) upon a finding of allowable subject matter in elected product claim 2.

Entry of the above amendment is respectfully requested.

Restriction Requirement

On page 2 of the Office Action, the Examiner sets forth the restriction requirement originally issued by telephone, in which restriction is required between:

Group I, claims 1-7, drawn to an isocyanate;

Group II, claims 8-12, drawn to a process for stabilizing an isocyanate; and

Group III, claims 13-17, drawn to a process for preparing a stabilized isocyanate.

The Examiner notes that a provisional election was made without traverse to prosecute the invention of Group I, claims 1-7, and that affirmation of this election must be made in replying to this Office action.

In response, Applicants hereby affirm the election of Group I, claims 1-7, without traverse. Further, Applicants respectfully request that the non-elected method claims be rejoined up a finding of allowable subject matter as discussed above per the provisions of MPEP 821.04(b). In particular, to facilitate rejoinder, Applicants have amended the end of independent method claim 8 to recite "to stabilize the (meth)acryloyloxyalkyl isocyanate and thereby produce

the (meth)acryloyloxyalkyl isocyanate according to claim 2", and Applicants have amended the end of independent method claim 13 to recite "to produce the (meth)acryloyloxyalkyl isocyanate according to claim 2".

Obviousness Rejection

On page 4 of the Office Action, claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masami et al (JP 02-145555) in view of Adams et al (US 3,247,236).

In response, Applicants submit initially that Masami et al only disclose adding sulfur dioxide to (meth)acryloyloxyalkyl isocyanate at a distilling stage to prevent the polymerization of the vaporized (meth)acryloyloxyalkyl isocyanate, and Adams et al only disclose adding carbon dioxide to a liquid isocyanate to improve stability during storage. Because the objects and embodiments of these inventions are significantly from each other, Applicants submit a person skilled in the art would not have combined the two references.

Furthermore, the isocyanates (particularly di-isocyanate) used by Adams et al contain hydrolyzable chlorine in an amount of not less than 60 ppm, and Masami et al are silent on hydrolyzable chlorine content. In contrast, the amended claims recite a hydrolyzable chlorine content of not more than 30 ppm.

The merit of the present invention is providing a method for improving storage stability of the (meth)acryloyloxyalkyl isocyanate comprising hydrolyzable chlorine in an amount of not more than 30 ppm, which is prepared by, for example, decreasing the amount of hydrolyzable chlorine with a purification process (adding an epoxy group-containing compound) and therefore is very unstable and easily produces white turbidity [see page 9, line 22 to page 10, line 8, and page 13, lines 18-24].

Thus, in detail, Adams discloses that its invention concerns the stabilization of liquid isocyanates with normally gaseous acidic oxides selected from the group consisting of carbon dioxide and sulfur dioxide (see col. 1, lines 8-9 and 55-58).

In contrast, the abstract of Masami indicates that sulfur dioxide inhibits polymerization of vaporized (meth)acrylic acid isocyanatoalkyl esters efficiently, and high purity (meth)acrylic acid isocyanatoalkyl esters can be prepared by distillation of (meth)acrylic acid isocyanatoalkyl esters in the presence of sulfur dioxide.

Since Adams concerns the stabilization of liquid isocyanates while Masami is directed to the inhibition of polymerization of vaporized (meth)acrylic acid isocyanatoalkyl esters, one of ordinary skill in the art would not have combined these two references with each other.

Also, Applicants have discussed Adams on page 4 of the present application, and note that Adams only specifically discloses a hydrolyzable chlorine content of at least 60 ppm. Further, as noted above, Masami does not mention anything about chlorine.

In contrast, the present invention concerns a lower amount of hydrolyzable chlorine, particularly not more than 30 ppm (see the first full paragraph on page 10 in the specification).

Accordingly, to distinguish the present invention from the cited art even further, Applicants have amended the claims to recite that the (meth)acryloyloxyalkyl isocyanate does not contain hydrolyzable chlorine in an amount of more than 30 ppm. Applicants submit that one skilled in the art would not have been motivated to make such a (meth)acryloyloxyalkyl isocyanate, since Adams and Masami do not teach or suggest such a requirement, nor do they indicate that the amount of hydrolyzable chlorine is a result-effective variable.

In conclusion, Applicants submit that the present invention is not obvious over the cited art, and withdrawal of this rejection is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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